

## Abstract View

# ACUTE ADMINISTRATION OF METHYLPHENIDATE IN DOPAMINE D4R TRANSGENIC MICE: EFFECTS ON LOCOMOTOR ACTIVITY AND CONDITIONED PLACE PREFERENCE

[S.N.Rivera<sup>1\\*</sup>](#); [D.Grandy<sup>2</sup>](#); [M.Rubinstein<sup>3</sup>](#); [N.D.Volkow<sup>1</sup>](#); [P.K.Thanos<sup>1</sup>](#)

1. Dept. of Med., Brookhaven Natl. Lab, Upton, NY, USA

2. Oregon Hlth. Sci. U, Portland, OR, USA

3. Universidad de Buenos Aires, Buenos Aires, Argentina

Methylphenidate (MP) is a central nervous system (CNS) stimulant used to treat Attention Deficit Hyperactivity Disorder (ADHD). It is not yet understood what factors account for the variability in physiological and behavioral responses to MP. Polymorphisms in the D4R are associated with novelty-seeking behavior, which is a hallmark of ADHD (Burgos-Arcos, et al. 2004). We utilized the D4R deficient (D4R<sup>-/-</sup>) mouse model (Rubinstein, et al, 1997) to study the behavioral effects of MP. Previous studies have shown that D4R<sup>-/-</sup> mice are hypersensitive to psychostimulants, display reduced spontaneous locomotor activity, and perform better on rotorod tests compared to their D4R<sup>+/+</sup> counterparts (Rubinstein, et al, 1997). In the current study, we tested the behavioral effects of MP in adult male D4 mice [D4R<sup>+/+</sup>(n=12), D4R<sup>+/-</sup>(n=12), D4R<sup>-/-</sup>(n=12)] using both a locomotor open field activity assay and conditioned place preference (CPP). CPP testing is a powerful tool that will be used to assess preference for environmental cues associated with MP. Preliminary results have indicated significant differences in behavioral response to MP among the 3 strains. Specifically: D4R<sup>-/-</sup> showed no preference for the MP-paired environment, compared to the D4R<sup>+/-</sup> and D4R<sup>+/+</sup> mice respectively. These findings support the notion that D4R plays a critical role in the behavioral profile of MP.

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